

Proposal for a Canadian Historical GIS Network

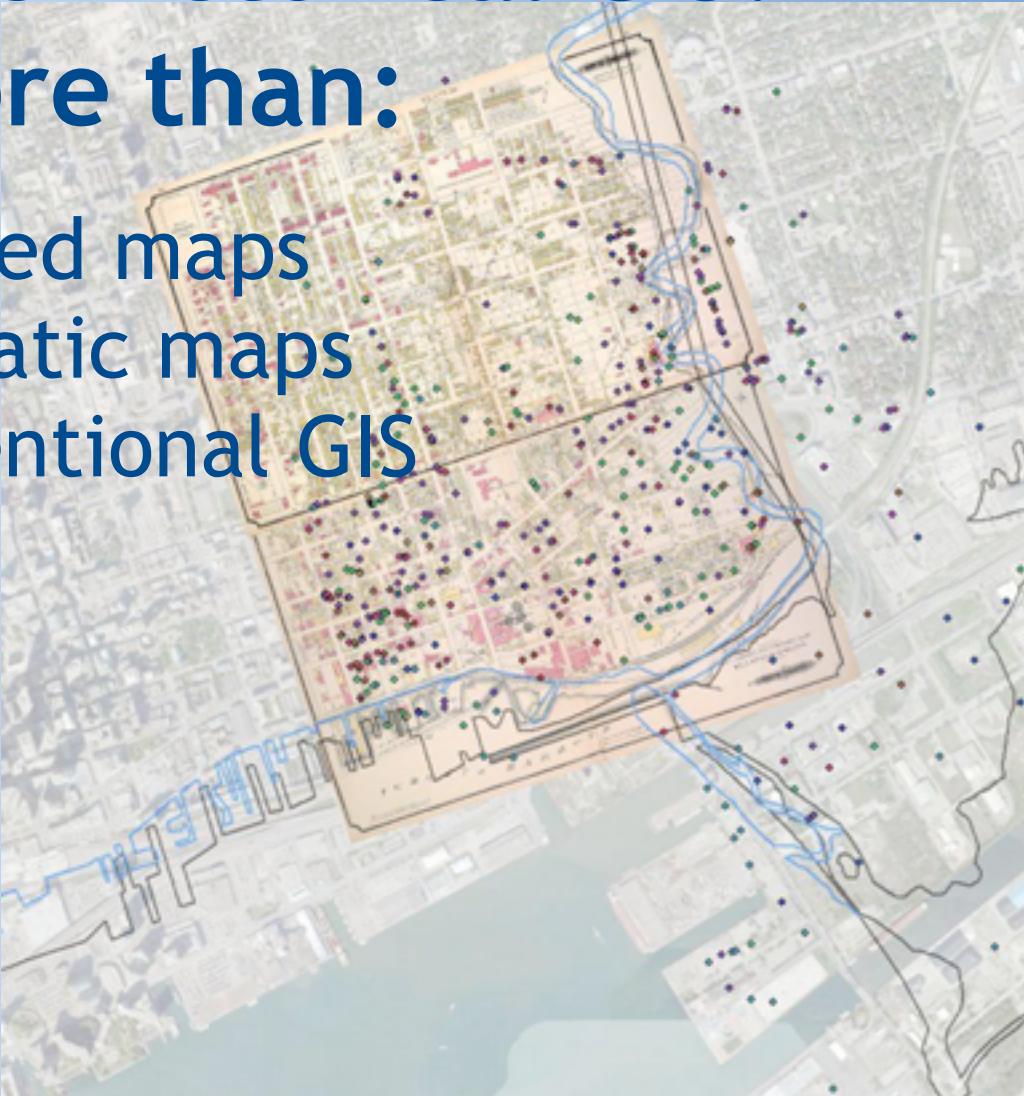
CARTO 2013

Marcel Fortin
Byron Moldofsky
University of Toronto
June 14, 2013

What is Historical GIS?

it's more than:

- Scanned maps
- Thematic maps
- Conventional GIS



HGIS is

"...new knowledge and new scholarship
about the geographies of the past."
Ian Gregory, 2008

HGIS is

GIS resources designed for doing history
Time, space, data, documentation, visualization

But...



Historical GIS question?

... suggested you may have datasets for the Greater Toronto area relevant to research I am undertaking on hydrologic response to land use change and associated aquatic biodiversity decline. I am interested in GIS files that provide current and historic land use information in the Humber and Don watersheds...



Data on road density or land use change (e.g. proportions of forested, wetland, agricultural, residential, industrial, etc) would be very relevant.

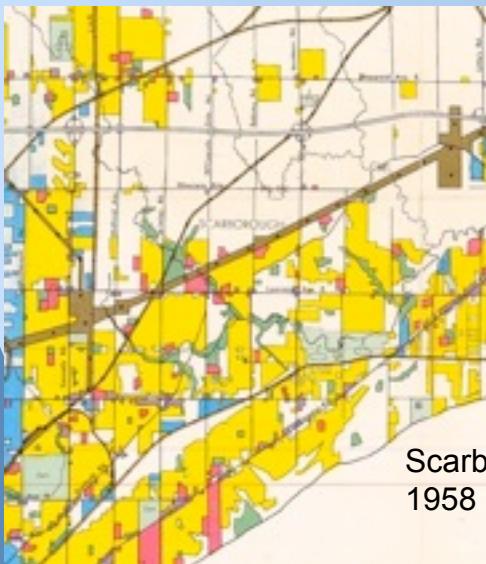
I am working with a hydrologic-climatic dataset that spans 1969 to 2010. Thus land use and/or road density information dating from the 1950's to current day is of interest.

Historical Land use from Official Plans

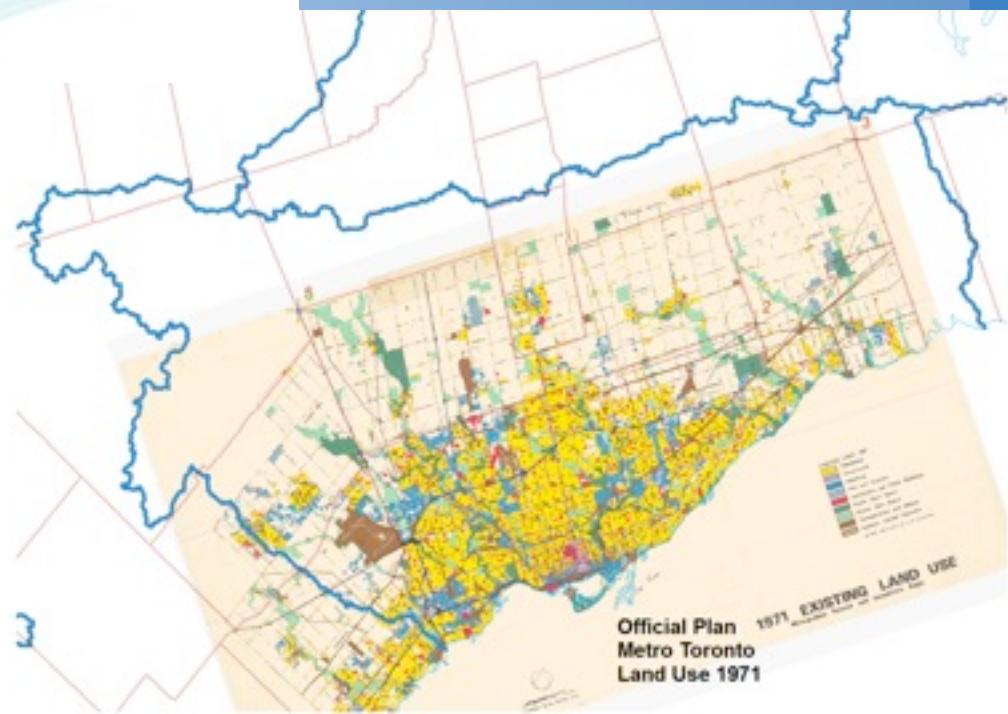


EXISTING LAND USE	
Residential	
Commercial	
Industrial	
Pits and Quarries	
Institutions and Public Buildings	
Public Open Space	
Private Open Space	
Transportation and Utilities	
Sanitary Landfill Operation	

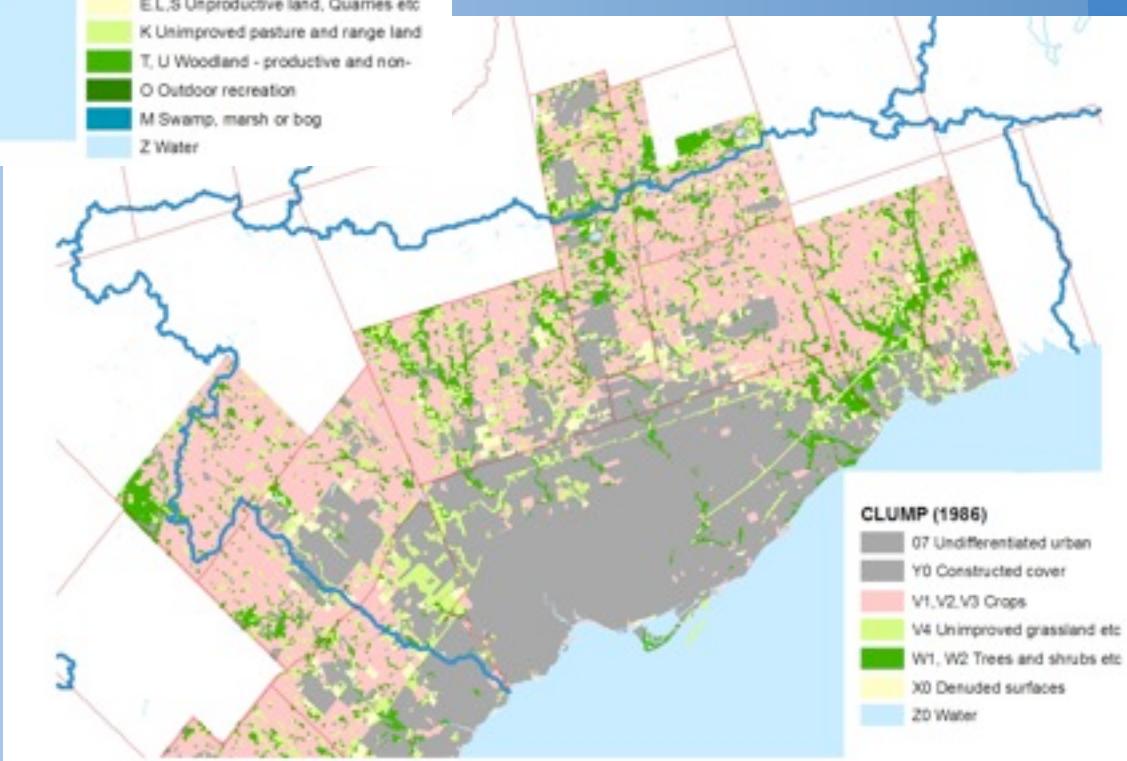
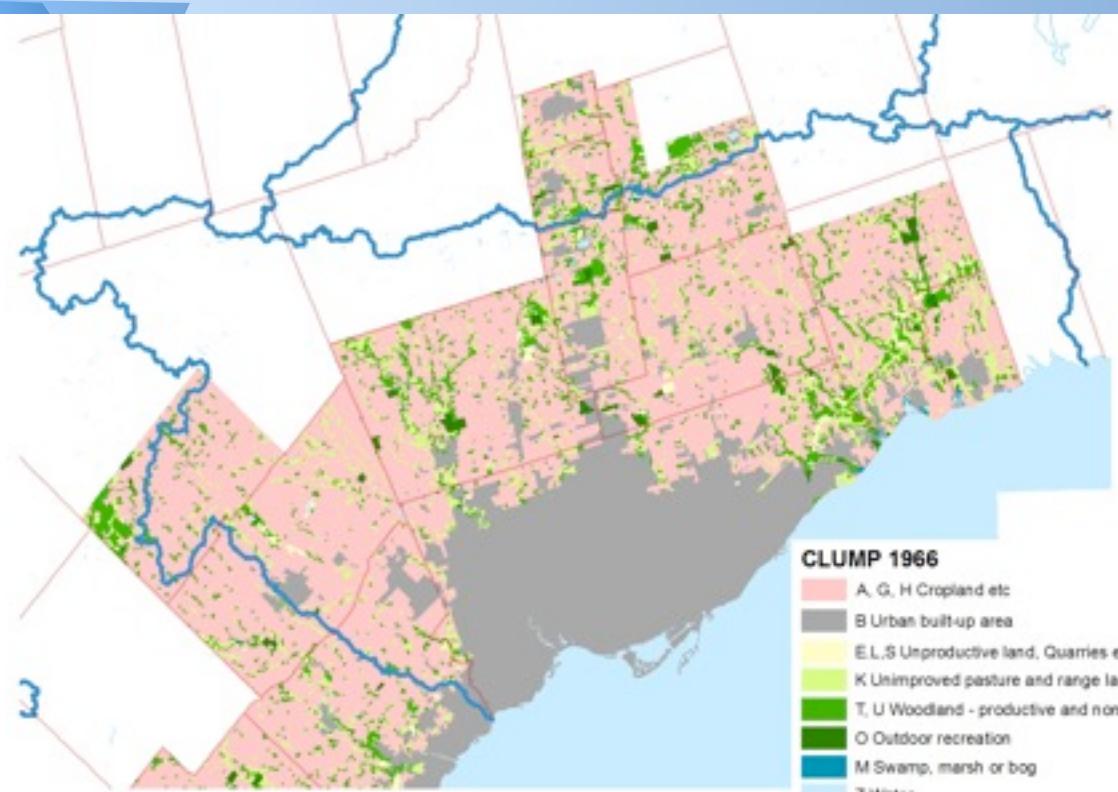
SOURCE: Field survey and aerial photography

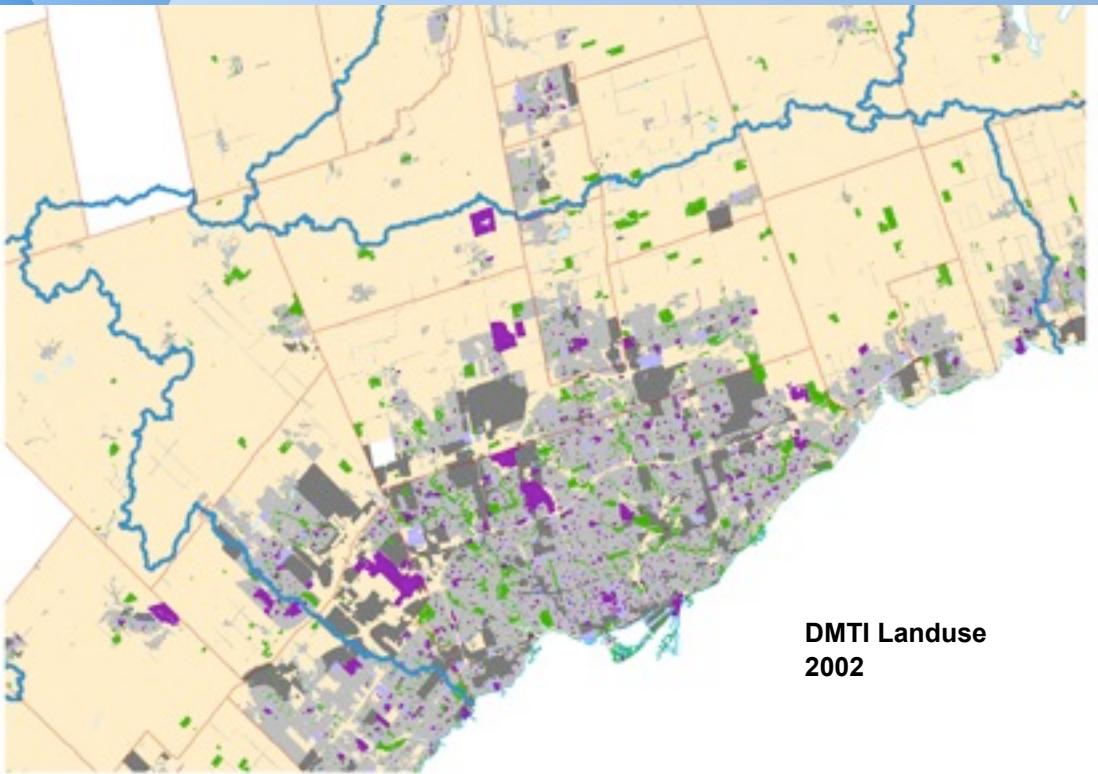


Scarborough
1958



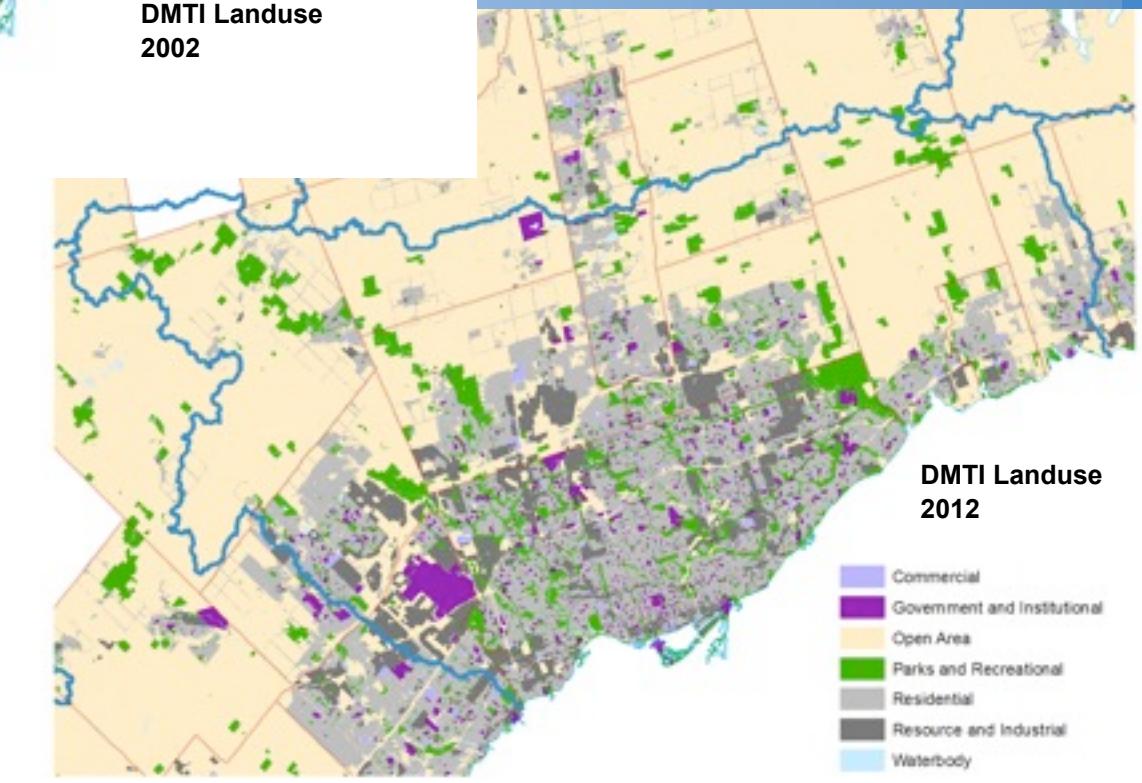
CLUMP Canada Land Use Monitoring Program Methodological changes after 1981





DMTI Landuse
2002

Landuse from
DMTI or other
commercial
data provider



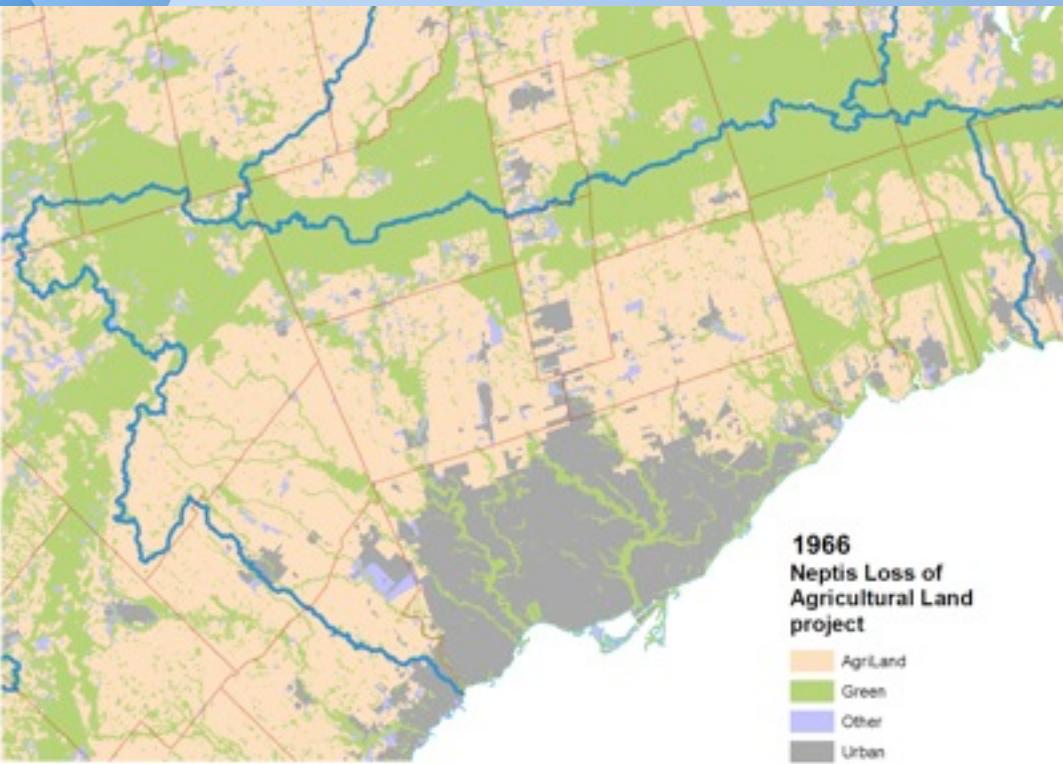
DMTI Landuse
2012

- Commercial
- Government and Institutional
- Open Area
- Parks and Recreational
- Residential
- Resource and Industrial
- Waterbody



Remote sensed imagery and analysis

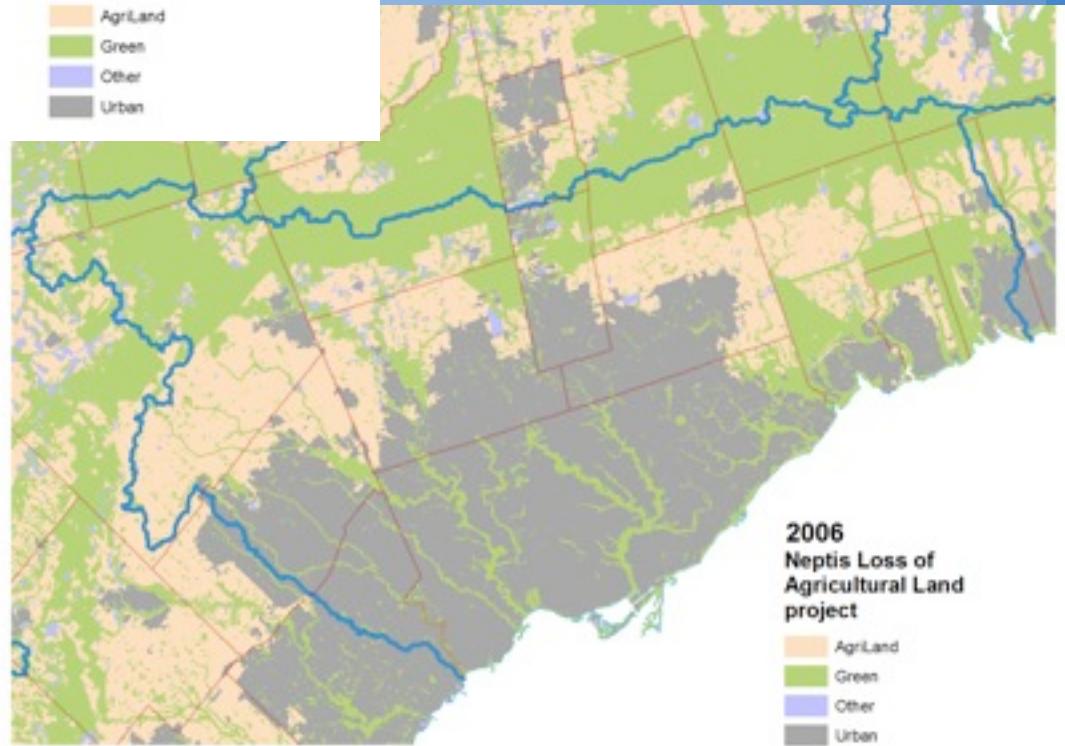




1966
Neptis Loss of
Agricultural Land
project

Agriland
Green
Other
Urban

Project- based research results



2006
Neptis Loss of
Agricultural Land
project

Agriland
Green
Other
Urban

CUrLUS Canadian Urban Land Use Survey

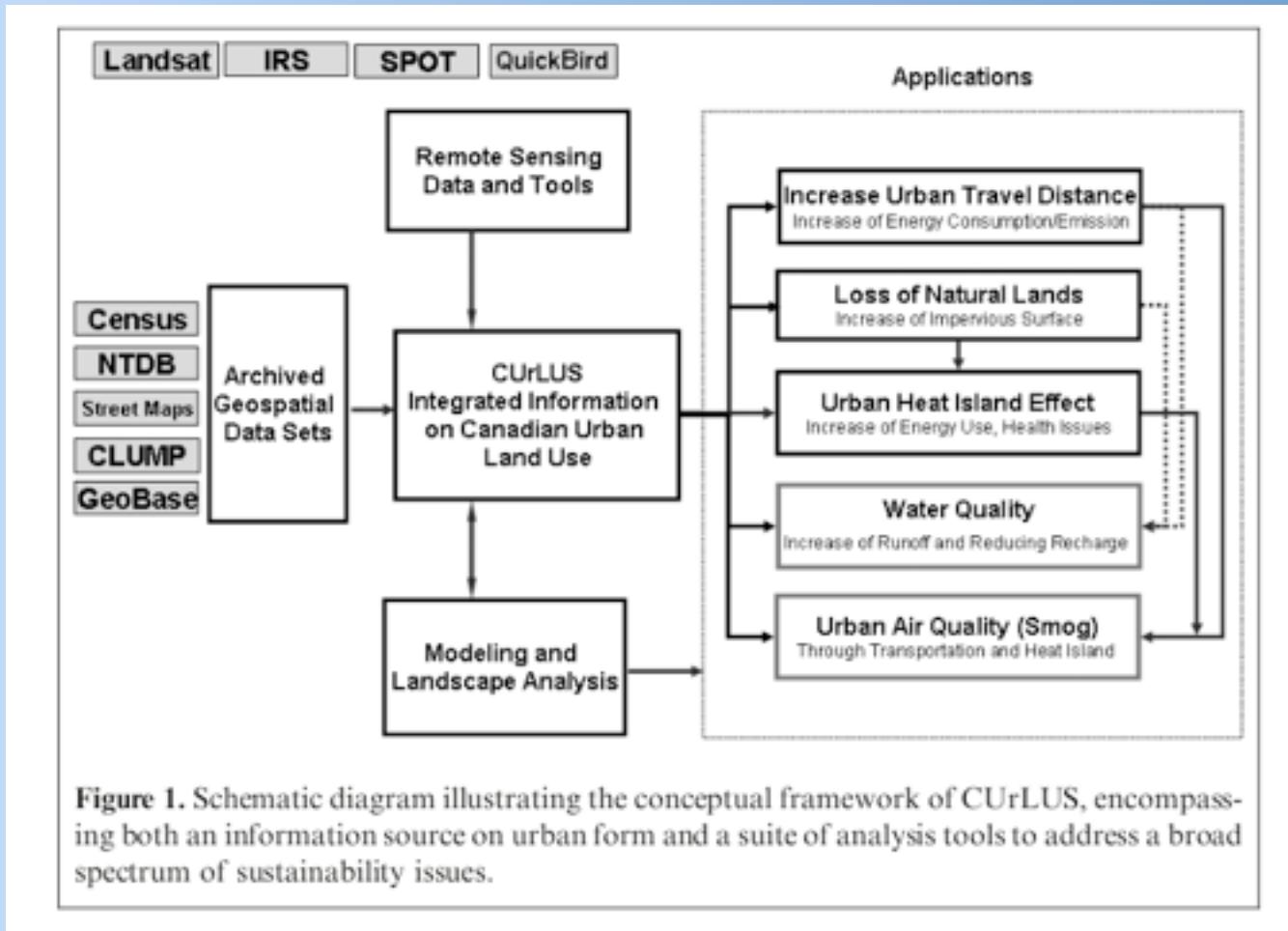
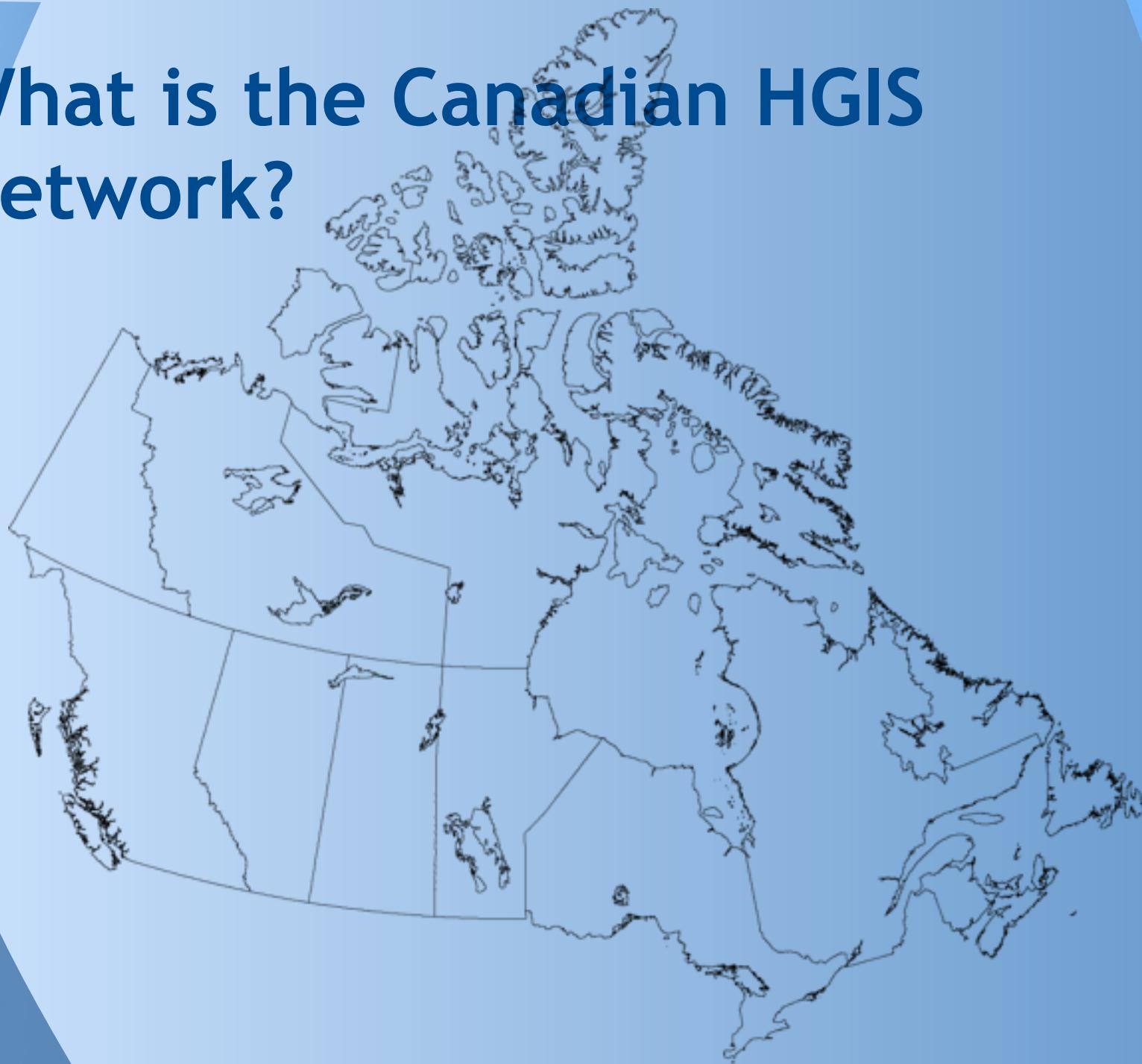


Figure 1. Schematic diagram illustrating the conceptual framework of CUrLUS, encompassing both an information source on urban form and a suite of analysis tools to address a broad spectrum of sustainability issues.

Concepts and application of the Canadian Urban Land Use Survey
Can. J. Remote Sensing, Vol. 36, No. 3, pp. 224-235, 2010
Y. Zhang, B. Guindon, K. Sun CCRS/NRCan

What is the Canadian HGIS Network?

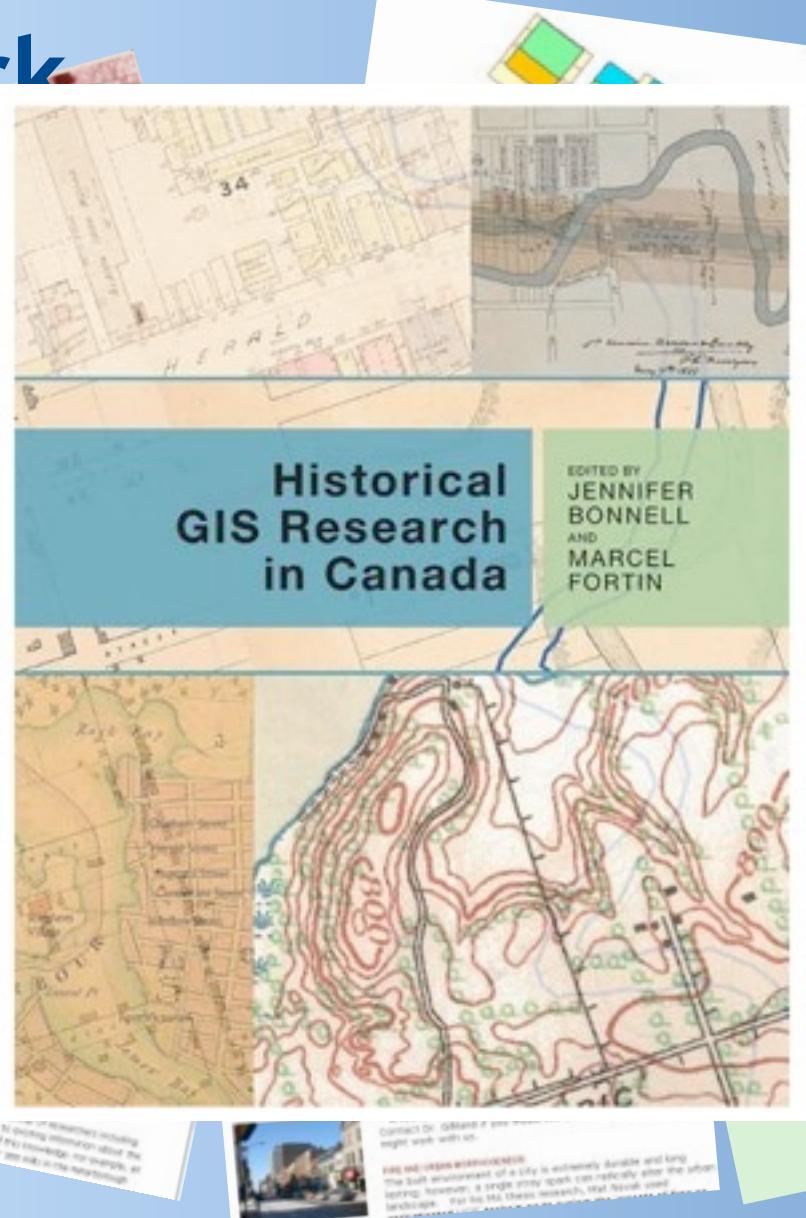


Goals of a Canadian Historical GIS Network?

- enable research and communication (between researchers and public)
- share resources
- avoid duplication / “re-digitizing the wheel”

Goals of a Canadian Historical GIS Network

The screenshot shows the homepage of the Don Valley Historical Mapping Project. It features a header with the project's name and a navigation menu with links like 'Home', 'About', 'Resources', 'Maps', and 'Contact'. Below the header is a large image of a historical map of the Don River valley. To the left of the map is a sidebar with the title 'Don Valley Historical Mapping Project Background' and a detailed description of the project's goals and methods. The main content area contains a section titled 'Historical GIS Research in Canada' edited by Jennifer Bonnell and Marcel Fortin.



The screenshot shows the 'Welcome to the User Guide' page of the Canadian Census Data Infrastructure (CCDI). The page has a green header with the title 'Welcome to the User Guide' and a sub-section 'Research Infrastructure à recherche sur le Canada au 20e siècle'. Below the header, there is a brief introduction to the CCDI's mission and how it provides researchers with access to historical census data. The page is organized into several sections with headings like 'Organization of the User's Guide', '1) 1911 Census', '2) CCDI Overview', and '3) The Database'. Each section contains detailed information and links to further resources.

Shared Data discovery tools

Geodata@Tufts

Welcome to the Tufts Geospatial Data Repository

Enter a keyword and/or interact with the map to discover geospatial data.

SEARCH

0 RESULTS

Get Started Search Cart (0)

Find Place (Example: Boston, MA)

Save Image Print Basemap v

Map controls: Clear preview Find Place (Example: Boston, MA)

Search for data layers... Advanced options

Limit results to visible map area

0 RESULTS

Welcome to MIT Geoweb

Enter a keyword and/or interact with the map to discover geospatial data.

SEARCH

0 RESULTS

Get Started Search Cart (0)

Find Place (Example: Boston, MA)

Save Image Print Basemap v

Map controls: Clear preview Find Place (Example: Boston, MA)

Search for data layers... Advanced options

Limit results to visible map area

0 RESULTS

Welcome to MIT Geoweb

Enter a keyword and/or interact with the map to discover geospatial data.

OpenGeoportal.org

OpenGeoportal

HOME NEWS SOFTWARE MEMBER LOGIN EVENTS ABOUT LEARN MORE

Home

OpenGeoportal.org is a resource that brings together geospatial professionals, developers, data operators, and others to advance the use of open geospatial data. The OpenGeoportal.org community is a place to share ideas, resources, and tools to ready data for reuse, analysis, and reuse. The OpenGeoportal.org community is a collective effort to support the use of open geospatial data, including data discovery, metadata, data sharing, data licensing, and data reuse in support of geospatial data resources. Please contact [David.Sorenson@tufts.edu](#) for more information. The OpenGeoportal is now receiving additional support from the [Alfred P. Sloan Foundation](#).

Upcoming Events

Tufts Presents OGP at UN Annual Plenary

Tufts University has been invited to present the Open Geoportal at the United Nations Geospatial Information Working Group (UN-GISWG) 2013 Annual Plenary in Istanbul, Turkey on February 27th - March 1st. [Geospatial Reading](#)

OpenGeoportal NATIONAL SUMMIT

Summer 2013

Get Started Search Cart (0)

Find Place (Example: Boston, MA)

Save Image Print Basemap v

Map controls: Clear preview Find Place (Example: Boston, MA)

Search for data layers... Advanced options

Limit results to visible map area

0 RESULTS

Welcome to the Harvard Geospatial Library

Enter a keyword and/or interact with the map to discover geospatial data.

SEARCH

0 RESULTS

Get Started Search Cart (0)

Find Place (Example: Boston, MA)

Save Image Print Basemap v

Map controls: Clear preview Find Place (Example: Boston, MA)

Search for data layers... Advanced options

Limit results to visible map area

0 RESULTS

Welcome to the Harvard Geospatial Library

Enter a keyword and/or interact with the map to discover geospatial data.

Shared Discovery tools...

www.oldmapsonline.org/ #bbox=-123.5289,49.028864,-122.722778,49.465076&q=&datefrom=1000&dateto=1900

Search Collection Blog About

OLD MAPS ONLINE

1000 1800 1800 1700 2020

Search

+

-

🔍

Gibsons

Gulf Islands

Lions Bay

Roberts Creek

Burke's Inlet

West Vancouver

Vancouver

Arbutus Ridge

Burnaby

Anmore

Coquitlam

Pitt Meadows

Surrey

Fleetwood

Langley

Brookwood

White Rock

Fraser River

Tsawwassen

Boundary Bay

Map data ©2013 Google - Tamara St. []

JISC

University of Portsmouth

KODAK TECHNOLOGIES

Google



Date 1718
Date of publication 1718
Map scale 1:100 000

Creator Schenckar, Johann Jakob
Conrautan Huber, Johann Helrich
Publisher Scheuchzer, Johann Jakob

More in the catalogue or on the website

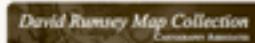


FRANCE.

Date 1810
Date of publication 1810
Map scale 1:100 000

Creator
Conrautan
Publisher Johnston, Alexander Keith, 1804-1872

More in the catalogue or on the website



Cote NO. 1 d'Amérique p.
1:100 000

Tying in existing systems

The image displays three screenshots illustrating the integration of existing systems for property data maps:

- Scholars GeoPortal:** A search results page showing 28 results for "property data maps". The results include various data layers such as Toronto Property Data Maps (PDMs), City of London Mapping Data Distribution, and City of Toronto Property Data Maps (PDM). Each result provides details like producer, date published, and type of data layer.
- Map of North America:** A large map of North America with a focus on Canada and the United States. It shows geographical features like the Great Lakes, the Rocky Mountains, and the border between the two countries.
- University of Toronto Map & Data Library:** A search results page for "property data maps". It shows a list of digital property data maps from 1990, including titles like "Digital Property Data Maps (1990)" and "Toronto Digital Property Data Maps (PDM) (2000-.)". Each entry includes creation date, creator, access information, and projection details.

The University of Toronto Map & Data Library page also contains a detailed note about licensing and usage instructions.

Standards

www.opengeospatial.org

Have an Idea? INSPIRE What is the OGC?

OGC® Making location count.

Home Standards Programs Participate News & Events About OGC Member Login Search

Geospatial and location standards for:

- Aviation
- Built Environment & 3D
- Business Intelligence
- Defense & Intelligence
- Emergency Response & Disaster Management
- Geosciences & Environment
- Government & Spatial Data Infrastructure
- Mobile Internet & Location Services
- Sensor Webs
- University & Research

The diagram illustrates the OGC's focus on spatial policy and interoperability across various domains. It features a central hexagon labeled "Interoperability" connected to other hexagons representing different spatial applications. The applications include Earth Observation, Analysis, Navigation, CAD, BIM, Proximity, Global Place, Points of Interest, Geoweb, Geosemantics, Situational Awareness, Real Time Visualization, GPS, SDI, Indoor/Outdoor Metadata, Climate, Planning, Time, Weather, Alerts, Data Quality, Information Integration, Geosynchronization, Map, Location, Monitoring, Share, and Open. The word "Open" is prominently displayed in the center of the network.

© 1994 - 2013 Open Geospatial Consortium. OpenGIS® and OGC® are registered trademarks of OGC.

Home Join OGC LinkedIn
Contact Us Follow OGC on Twitter
Search this Site RSS Feeds
Site Map OGC Member Portal
OGC Network OGC Compliance Testing
OGC Compliance Testing Upcoming Events

Standards - Metadata

The image shows two overlapping web pages. The left page is from ISO.org, displaying the ISO 19115:2003 standard for Geographic Information - Metadata. It includes sections for Media and price, an Abstract, and a detailed description of the standard's scope. The right page is from fgdc.gov, specifically the Geospatial Metadata Standards section. It features a sidebar with navigation links like Home, Planning, International, and NAC. The main content discusses the transition to ISO metadata, listing various resources and profiles.

ISO 19115:2003
Geographic Information -- Metadata

Media and price

PDF
Price CHF 224.00
Paper CHF 234.00
Language English
Add to basket

Abstract

ISO 19115:2003 defines the schema required for describing geographic information and services. It provides information about the identification, the extent, the quality, the spatial and temporal schema, spatial reference, and distribution of digital geographic data. ISO 19115:2003 is applicable to:

- the cataloguing of datasets, clearinghouse activities, and individual geographic features and feature properties.

ISO 19115:2003 defines:

- mandatory and conditional metadata sections, metadata entities, and metadata elements.
- the minimum set of metadata required to serve the full range of metadata applications (data

Geospatial Metadata Standards

You are here: Home > metadata > geospatial metadata standards

Most NSDI stakeholders have long utilized the Content Standard for Digital Geospatial Metadata (CSDGM) as their agency's primary geospatial metadata standard. Since ISO 19115 and the associated standards are endorsed by FGDC, many agencies are able to do so. While the selection of appropriate standards is dependent upon the needs of the organization, it is recommended that the transition to ISO metadata is considered an option now. It is recognized that the transition to ISO metadata is

- FGDC Endorsed ISO Metadata Standards
- Which ISO Metadata Standards Do Organizations Utilize?
- Should Our Agency Be Using ISO Metadata?
- ISO Metadata Implementation Is Happening
- The Content Standard for Digital Geospatial Metadata (CSDGM)
 - CSDGM Resources
 - CSDGM Profiles and Extensions
 - Status of the North American Profile (NAP)
 - Preparing for the North American Profile (NAP)
 - North American Profile (NAP) Resources
 - Purchasing the North American Profile (NAP)

Standards - conversion/ reconstitution

	2006	2001	1996	1991	1986	1981	1971	1851-1961	1871
Census agricultural regions (CAG)	X		X		X				
Geographic divisions (CD)	X	X	X	X	X	X	X		
Census division economy files	X	X	X	X	X	X	X		

Off-campus University of Toronto users login to [myaccess first](#)

Accesibility: Open Access, Restricted Access, Contact, Group Buy, Order, Order Online, Order Online - University of Toronto, Order Online - Library Services

All Canada, Quebec, Ontario, Maritime /ATLAS GIS format

contact GEORIA

ABG

Untitled - HOME > NONE - EMC Workbench

File Edit View Insert Readers Transformers Writers Inspector Tools Help

Navigator

- Transformers
- Incomplete transformers
- Workbooks
- User Parameters
- Published Parameters
- Private Parameters
- workspace Resources
- workspace Parameters
 - Log File (not set)
 - Source Redirect (No Redirect)
 - Destination Redirect (No Redirect)
 - Terminator Redirect (No Redirect)
- Advanced
- workspace Properties
 - Name: <not set>
 - Category: <not set>
 - Description: <not set>
 - Usage: <not set>
 - Requirements: <not set>
 - Requirements Flag: <not set>
 - History: <not set>
 - Last Save Date:
 - Last Save Build: <not set>
 - Legal Terms and Conditions: <not set>
- Metadata Search

GMLFeatureExtractor

Transformer Description

GMLFeatureExtractor

Constructs GML2 documents from the input features and stores them in the specified attribute for the features that are output by the GML2 port. The GML2 documents written under the attribute conform to the GML_SAFE schema.

Log Transformer Description

Transformer Gallery

- GeometryFilter
- GeometryInparator
- GeometryOCHandler
- GeometryPropertiesExtractor
- GeometryPropertiesReplacer
- GeometryPropertiesRemover
- GeometryPropertiesSetter
- GeometryFilterer
- GeometryReplacer
- GeometryNaturalExtractor
- GeometryNaturalReplacer
- GMLFeatureExtractor

Ready

Main Page Related Pages Classes Files

GDAL - Geospatial Data Abstraction Library

Select language: (English) Russian Portuguese French

GDAL is a translator library for raster geospatial data formats that is released under an X/MIT style Open Source license by the Open Source Geospatial Foundation. It provides a simple interface for reading and writing over 200 different raster and vector data formats. The related OGR library (which lives within the GDAL source tree) provides a similar capability for simple features vector data.

April 2013 GDAL/OGR 1.10.0 release.

Master: <http://www.gdal.org>, <http://download.osgeo.org>

Download: <http://download.osgeo.org/gdal/>

User Oriented Documentation

- FAQ - Various user and developer contributed documentation and hints
- Downloads - Ready to use binaries (executables)
- Supported Formats : GeoTIFF, Erdas Imagine, SDTS, ECW, MrSID, JPEG2000, DTED, NITF, ...
- GDAL FAQ
- GDAL Data Model
- GDAL/OGR Governance and Community Participation
- Sponsors, Acknowledgements and Credits
- Software Using GDAL

Developer Oriented Documentation

- Building GDAL From Source
- Download - source code
- API Reference Documentation
- GDAL API Tutorial
- GDAL Driver Implementation Tutorial
- GDAL Warp API Tutorial
- GDAL/OGR API Reference Tutorial
- GDAL C API
- GDAL Algorithms C API
- GDAL/ograpi C++ API
- GDAL/Rasterband C API
- GDAL for Windows CE

Mailing List

A gdal-announce mailing list subscription is a low volume way of keeping track of major developments with the GDAL/OGR project. The gdal-dev@lists.osgeo.org mailing list can be used for discussion of development and user issues related to GDAL, and related tools. The mailing list is also available in read-only format by MHTP at news:lists.gdal.org@gdal.announce and by HTTP since 2005 are searchable on Nabble.

Standards - Licensing

The image displays four overlapping screenshots of websites related to open government and creative commons licensing:

- Open Government Licence for public sector information:** A screenshot from the National Archives website showing the Open Government Licence. It includes the Royal Coat of Arms, a summary of the licence terms, and sections for "Using information under this licence" and "You are free to".
- GeoBase Unrestricted Use Licence Agreement:** A screenshot of the GeoBase website's licence agreement page. It features the GeoBase logo and a "Building on common ground" tagline. The page details the legal agreement between the licensee and the Canadian government.
- Creative Commons:** A screenshot of the Creative Commons website. It shows the "SCHOOL OF OPEN LAUNCHES" banner, navigation links like "About", "Licenses", and "Public Domain", and a search bar.
- Creative Commons interface:** A screenshot of a Creative Commons-licensed interface, possibly a file sharing or search platform. It features a hand holding a pen over a document with a padlock icon, and text about finding CC-licensed works and supporting Creative Commons.

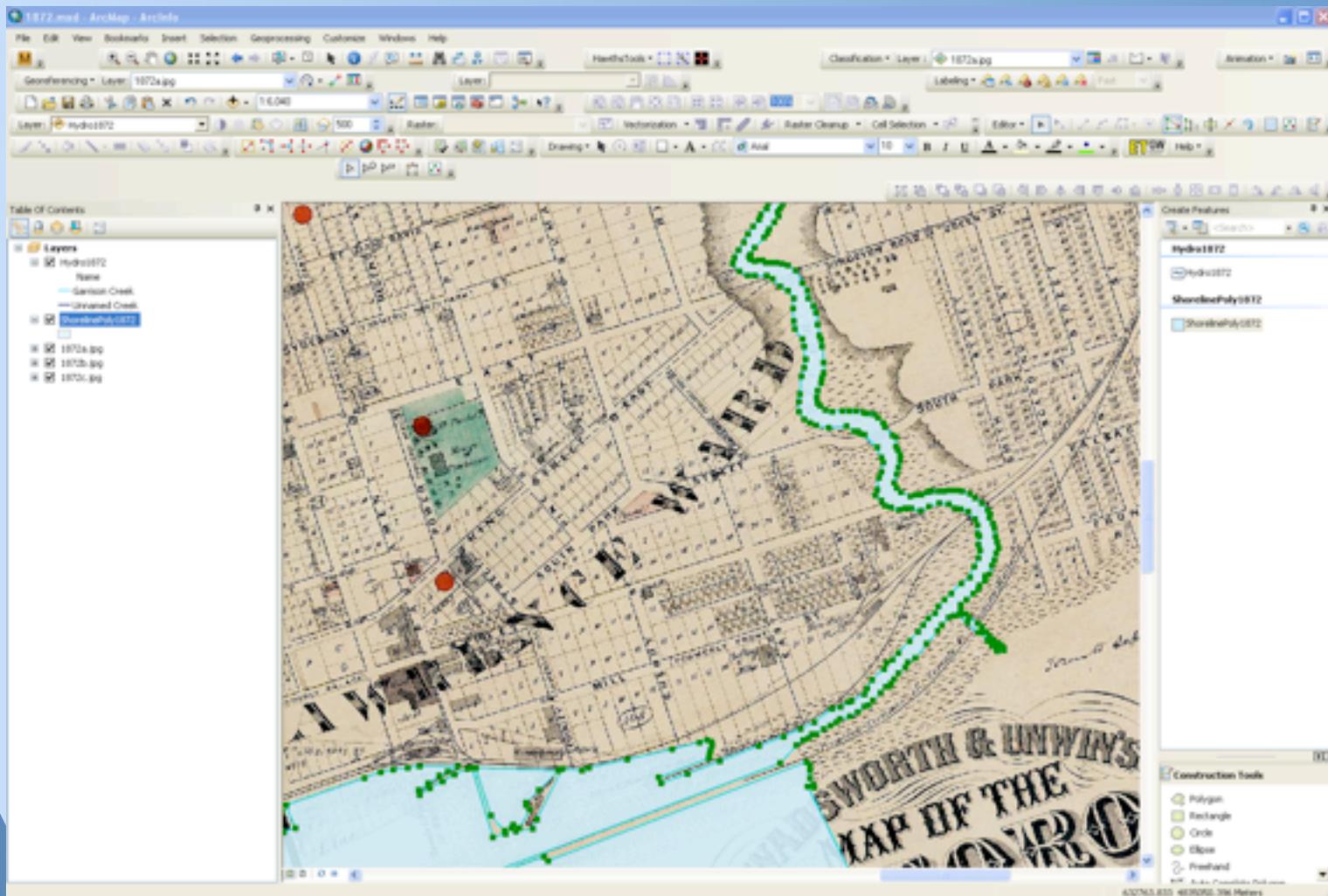
Best Practices - Georeferencing



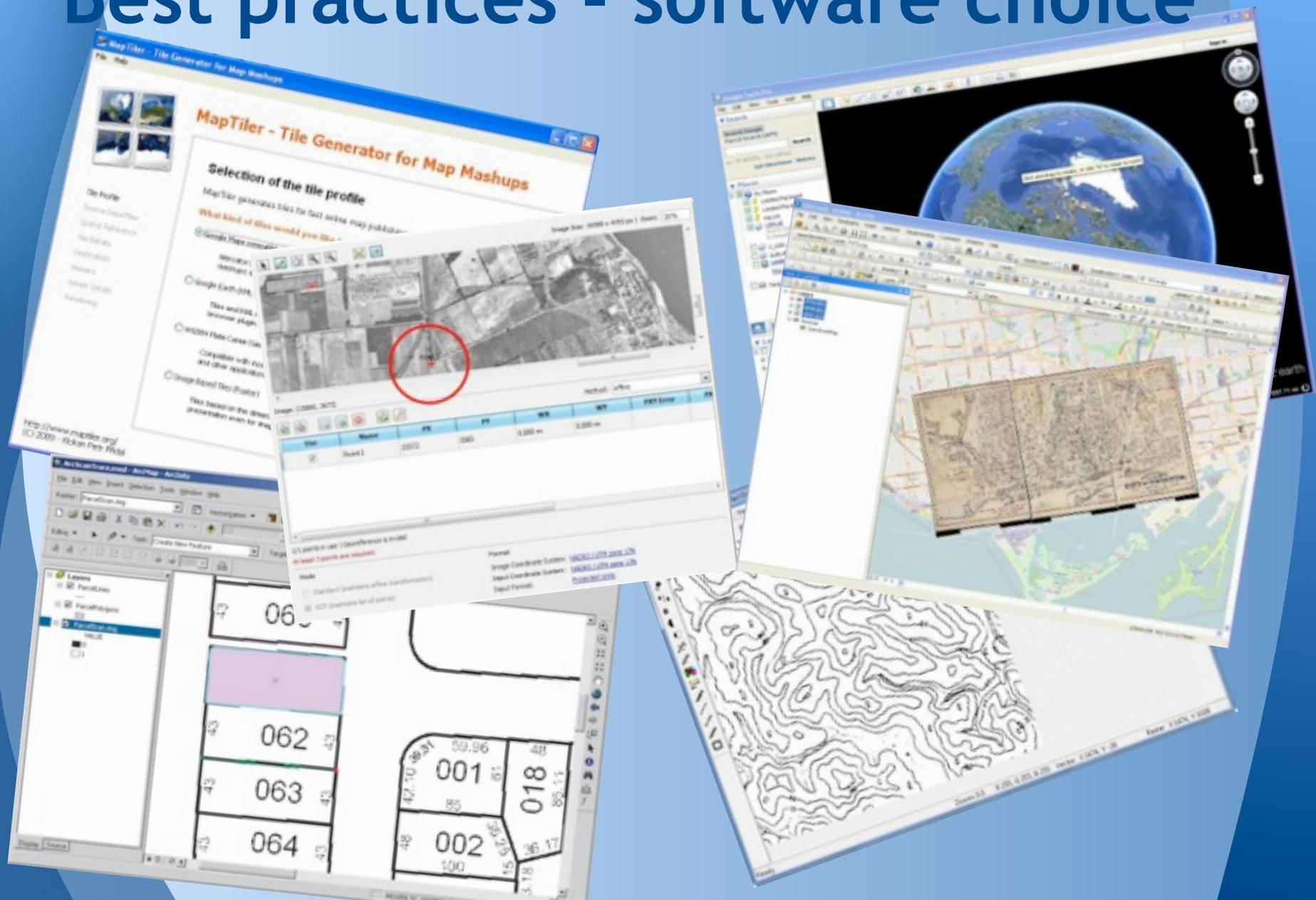
Best practices - mosaicing



Best practices - vectorization



Best practices - software choice



Project data dissemination for "Orphan" data, "lost" and forgotten



Data Curation?



The screenshot shows a web browser displaying the Archivematica Main Page at https://www.archivematica.org/wiki/Main_Page. The page features a large orange and blue logo. The navigation menu on the left includes links for Main page, Recent changes, Random page, Toolbox, What links here, Related changes, Special pages, Printable version, and Permanent link. The main content area has tabs for Page (selected) and Discussion. The main title is "Main Page". Below it, a section titled "What is Archivematica?" describes it as a free and open-source digital preservation system designed for digital objects, using a micro-services design pattern and ISO-OAIS functional model. It also mentions METS, PREMIS, Dublin Core, and significant characteristics of file formats. A note about the overview and a screencast video are also present.

Navigation

Main page Recent changes Random page

Toolbox

What links here Related changes Special pages Printable version Permanent link

Page Discussion

Main Page

What is Archivematica?

Archivematica is a free and open-source [digital preservation](#) system that is designed to digital objects.

Archivematica uses a [micro-services](#) design pattern to provide an integrated suite of so ingest to access in compliance with the ISO-OAIS functional model. Users monitor and Archivematica uses METS, PREMIS, Dublin Core and other best practice metadata str analysis of the [significant characteristics](#) of file formats.

The [overview](#) section provides a detailed description of Archivematica's functionality and a [screencast](#) gives a demo of the core features in the current release.

Other Goals and Objectives

- Create a community
- Foster Conversations
- Prevent duplication
- Promote Literacy
- Build teaching tools

Other examples

The collage displays several historical GIS websites:

- NHGIS (National Historical Geographic Information System)**: A screenshot showing a map of the United States with state boundaries and a sidebar with links like "Data", "Select Data", and "Research".
- University of Portsmouth GB Historical GIS**: A screenshot of the University of Portsmouth's website for the Great Britain Historical Geographical Information System (GBHGIS), featuring a map of the UK.
- Spatial Humanities Projects & Groups**: A screenshot of the Institute for Enabling Geospatial Scholarship website, showing a map of New York City and links to "View All Projects" and "View All Groups".
- The Historical GIS Research Network**: A screenshot of the network's website, listing its main aims: to provide a forum for Historical GIS research, advance our understanding of Historical GIS applied levels, encourage the adoption of GIS amongst historians, and encourage the setting up of an international association to act as a focal for historical GIS research.
- The Spatial History Project**: A screenshot of Stanford University's Spatial History Project website, featuring a landscape image and a sidebar with "RECENT UPDATES".

Next steps

- Community creation (librarians, archivists, historians, geographers, cartographers, etc.)
- Assembly of collaborators (pitching in)
- Discussion of terms of reference

Next steps - collaborator decisions

- data portal?
- discovery?
- data archive?
- best practices / knowledge base?
- data creation / enhancement?

Next Steps

- Funding
 - SSHRC - Partnerships/Dev't Program?
 - SSHRC - Connections Program?
"Guidelines and support for tools for research and research-related activities are under development, to be announced during fiscal year 2012-13."
 - Canadian Foundation for Innovation (CFI) - Research Infrastructure Development?
 - Joint applications with Partners?

Potential collaboration / partnerships?

- NRCan
- Statistics Canada
- Provincial Bodies
- NiCHE
- Scholars Portal
- LAC

Canadian Historical GIS so far

hgis-sigh-l@listserv.utoronto.ca

subscribe by sending email to:

listserv@listserv.utoronto.ca

“subscribe hgis-sigh-l

yourmail@youraddress.ca

Firstname Lastname”

Canadian Historical GIS so far

<http://www.hgis-sigh.ca>

The screenshot shows a web browser window with the URL www.hgis-sigh.ca in the address bar. The page title is "CANADIAN HISTORICAL GIS NETWORK". Below the title, there are three menu items: "PRESENTATION", "LISTSERV", and "CONTACT". On the left side of the main content area, there is a map of a city with a grid layout, overlaid with various colored dots and lines, representing historical data. To the right of the map, the text "Welcome Canadian Historical GISers" is displayed in red. Below this, a paragraph explains the purpose of the network: "Welcome to the Canadian Historical Geographic Information System Network website. Our purpose is to gather together like-minded others who think Historical GIS work in Canada would benefit from additional coordinated resources, and wish to work together towards this goal." Further down, it states: "A presentation outlining the justification and some possible strategies for establishing such a network will take place at Carto 2013, on Friday June 14, 2013. See the links above." Another paragraph mentions the start of a listserv: "This group is also starting a listserv to circulate information about the project, and to share proposals and comments among the group." At the bottom, an invitation is given: "We invite historical geographers, cartographic and GIS specialists, map librarians and archivists, and anyone else with a determination to advance the practice of GIS for historical purposes to join us. Welcome!" A quote from Ian Gregory, 2008, is also present: "'using GIS to create new knowledge and new scholarship about the geographies of the past.' Ian Gregory, 2008".

What's missing?